IN THE CLAIMS

Please amend the claims as follows:

Claims 1-17 (Canceled).

Claim 18 (Currently Amended): A variable-reluctance analog position transducer configured to determine a variation of position of a target made by the method according to claim 34 ~~a process, the transducer including,~~

~~a target made of a ferromagnetic material;~~

~~at least one magnet, the target and the at least one magnet defining between one another an air gap;~~

~~a magnetosensitive element detecting a variation of induction caused in the air gap by displacement of the target relative to the at least one magnet, wherein the at least one magnet is magnetized along a direction substantially perpendicular to a front surface of the at least one magnet bounding one edge of the air gap, the at least one magnet having a cavity opening on the front surface of the at least one magnet, the magnetosensitive element being seated in the cavity, the target having a geometric configuration such that the variation of induction as a function of the position of the target corresponds to a predefined function,~~

~~the process comprising:~~

~~establishing a first geometric shape for the target;~~

~~positioning points on the target, the points having coordinates in a viewing plane of spatial coordinates;~~

~~calculating a magnetic induction signal as a function of linear or rotary displacement of the target, the displacement of the target being effected over a predefined trajectory;~~

~~modifying coordinates of one of the points and recalculating the induction as a function of the position of the target to determine influence of this point on the induction measured by the at least one magnet;~~

~~determining a matrix and solving an equation configured to define a new geometric shape of the first shape determined previously for the target;~~

~~repeating the calculating, modifying, and determining until a magnetic induction as a function of the linear or rotary displacement of the target is obtained satisfying in conformity with desired linearity criteria, or until a nonlinear function is obtained; and~~

~~forming the target with the new geometric shape determined in a last iteration of said determining~~.

Claim 19 (Previously Presented): A variable-reluctance analog position transducer according to claim 18, wherein the target is translationally mobile along an axis perpendicular to an axis of magnetization of the at least one magnet.

Claim 20 (Previously Presented): A variable-reluctance analog position transducer according to claim 18, wherein the target is translationally mobile along an axis parallel to an axis of magnetization of the at least one magnet.

Claim 21 (Previously Presented): A variable-reluctance analog position transducer according to claim 18, wherein the target is rotationally mobile around a shaft perpendicular to an axis of magnetization of the at least one magnet.

Claim 22 (Previously Presented): A variable-reluctance analog position transducer according to claim 18, wherein the target is rotationally mobile around a shaft parallel to an axis of magnetization of the at least one magnet.

Claim 23 (Previously Presented): A variable-reluctance analog position transducer according to claim 18, wherein a plane in which displacement of the target takes place is included in a plane passing through the center of the magnetosensitive element.

Claim 24 (Previously Presented): A variable-reluctance analog position transducer according to claim 18, further comprising a ferromagnetic piece adhesively bonded to a back of the at least one magnet.

Claim 25 (Previously Presented): A variable-reluctance analog position transducer according to claim 24, wherein the at least one magnet is adhesively bonded to a T-shaped ferromagnetic piece.

Claim 26 (Previously Presented): A variable-reluctance analog position transducer target according to claim 18, wherein the target has a particular or optimized shape, configured to deliver a linear induction as a function of the displacement of the target.

Claim 27 (Previously Presented): A variable-reluctance analog position transducer according to claim 18, wherein the magnetosensitive element is placed in the cavity in a zone of minimal induction.

Claim 28 (Previously Presented): A variable-reluctance analog position transducer according to claim 21, wherein the target comprises at least one spiral tooth.

Claim 29 (Previously Presented): An analog position transducer according to claim 28, wherein the target comprises three spiral teeth, each disposed at an angle of 120°.

Claim 30 (Previously Presented): A variable-reluctance analog position transducer according to claim 28, wherein a maximum measurable angular travel is close to 360°.

Claim 31 (Previously Presented): A variable-reluctance analog position transducer according to claim 19, wherein the target has a shape configured to generate a variation of thickness of the air gap that is a function of a position relative to the at least one magnet.

Claim 32 (Previously Presented): A variable-reluctance analog position transducer according to claim 20, wherein the at least one magnet and the magnetosensitive element are disposed opposite a ferromagnetic membrane configured to be deformed under effect of a force applied vertically to a membrane.

Claim 33 (Previously Presented): An angular position transducer for a camshaft or crankshaft, provided with an analog position sensor according to claim 21.

Claim 34 (Previously Presented): A method for construction of a target for an analog position transducer made of a ferromagnetic material, having a desired induction signal, the transducer including,

a target made of a ferromagnetic material;

at least one magnet, the target and the at least one magnet defining between one another an air gap;

a magnetosensitive element detecting a variation of induction caused in the air gap by displacement of the target relative to the at least one magnet, wherein the at least one magnet is magnetized along a direction substantially perpendicular to a front surface of the at least one magnet bounding one edge of the air gap, the at least one magnet having a cavity opening on the front surface of the at least one magnet, the magnetosensitive element being seated in the cavity, the target having a geometric configuration such that the variation of induction as a function of the position of the target corresponds to a predefined function,

the method comprising:

establishing a first geometric shape for the target;

positioning points on the target, the points having coordinates in a viewing plane of spatial coordinates;

calculating a magnetic induction signal as a function of linear or rotary displacement of the target, the displacement of the target being effected over a predefined trajectory;

modifying coordinates of one of the points and recalculating the induction as a function of the position of the target to determine influence of this point on the induction measured by the at least one magnet;

determining a matrix and solving an equation configured to define a new geometric shape of the first shape determined previously for the target; and

repeating the calculating, modifying, and determining until a magnetic induction as a function of the linear or rotary displacement of the target is obtained satisfying in conformity with desired linearity criteria, or until a nonlinear function is obtained.